NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
FACT SHEET
(pursuant to NAC 445A.236)

Permittee Name: Titanium Metals Corporation
8000 West Lake Mead Dr.
Henderson, NV 89015

Permit Number: NV0000060

Location: Section 12, T22S, R62E, MDB&M, in the BMI Complex at Lake Mead Drive and Atlantic Ave. along 15th Street.

Latitude: 36° 02' 48" N
Longitude: 115° 00' 02" W

Description of Discharge:

Under the existing permit, the Permittee is authorized to discharge up to 6.2 MGD of non-process wastewater, consisting of storm water, non-contact cooling water, descaling water, Venturi scrubber water, swamp cooler water, referred to as Outfall 001. These streams were co-mingled before discharge to the Pittman Bypass, which transmits the flow to the Las Vegas Wash. The wastewater generated in the titanium production process, up to 0.20 MGD, was discharged to the Pabco Pond System for management and disposal under Nevada Groundwater Discharge Permit NEV2000510. A review of chemical analysis submitted with the application (March, 1996) and subsequent analyses, reveals that the non-process wastewater is of very high quality. Pollutants of concern that were found to be present in the non-process wastewater are oil and grease (2.2 mg/l), copper (0.046 mg/l), perchlorate (0.008 mg/l), and titanium (0.032 mg/l). Review of Discharge Monitoring Reports (DMRs) for this facility indicate compliance with permit limitations during the term of the current permit, with the exception of low pH readings on three days during second and third quarters, 2003. The DMRs listed pH readings of 4.9, 6.4, and 6.4 Standard Units, while the pH limitation is 6.5 to 9.0 Standard Units.

In November 2004, the Permittee requested modification of the NPDES permit to reflect proposed changes to the management of process wastewater. The process wastewater includes the following streams: SO_X Scrubber spent caustic; Continuous Sludge Dryer effluent; and Acid Drain effluent (also called Other Process Wastes). The Permittee proposed the discontinuation of process water discharge to the Pabco Pond System, and the construction of a wastewater neutralization process and reverse osmosis treatment system. The Permittee also plans to route the Venturi scrubber water, formerly included in the stream of Outfall 001, to the Wastewater Neutralization Plant. The new treatment strategy should result in a highly treated permeate flow of 0.208 MGD, a wastewater stream of approximately 0.03 MGD, and approximately 10 tons per day of precipitated solids. The wastewater stream and the solids will be administered under the current Groundwater Discharge Permit NEV2000510, which will be modified to reflect the changes in the process and will become a Zero Discharge Permit. The Permittee intends to discharge the high quality permeate to the Las Vegas Wash. Because the permeate is a process stream, the technology based effluent limitation guidelines for the Primary and Secondary Titanium Subcategory (40 CFR Part 421 Subpart AB) apply to this stream. The three applicable processes within Subpart AB are: Item a) Chlorination off-gas wet air pollution control; Item d) Reduction area wet air pollution control; and Item n) Casting crucible wash water. This outfall for discharge of the high-quality, treated permeate (Outfall 002) will be monitored separately because this process stream accounts for only 3.2% of the total requested permit flow of 6.5 MGD, and would be so diluted by the non-process water as to make monitoring impracticable (40 CFR Part 122.45(h)).

Receiving Water Characteristics:

The discharge enters the Pittman Bypass channel and then flows to the Las Vegas Wash. The Las Vegas Wash is the natural drainage in the Las Vegas Valley and is the receiving stream for all Las Vegas area surface water dischargers. The water flowing in the wash is primarily treated wastewater from the Clark County Water Reclamation District, City of Las Vegas, and the City of Henderson. Titanium Metals Corporation, Kerr-McGee Chemical Company, and Pioneer Chlor Alkali are the major non-government facilities using the Las Vegas Wash as a receiving stream.

The designated beneficial uses for the affected reach of Las Vegas Wash, Pabco Road to Lake Mead, are listed in NAC 445A.200. These are: Irrigation; Watering of Livestock; Recreation not involving contact with the water; Maintenance of a freshwater marsh; Propagation of wildlife; and Propagation of aquatic life, excluding fish. (This does not preclude the establishment of a fishery.)

Rationale for Permit Requirements:

OUTFALL 001
The wastewater previously discharged under Permit NV0000060 contained only storm water, non-contact cooling water, and waste streams from equipment that is not contaminated with production process wastewater. Monitoring requirements and, in some cases, effluent limitations, were in place for certain pollutants (oil and grease, copper, titanium, and perchlorate) that are found to be present in the wastewater. Regular monitoring for magnesium and chloride, which are used in the chemical processes at this facility, was used to verify that these chemicals do not enter the wastewater stream in sufficient quantities to threaten the water quality of the receiving water. Water quality standards for pH and total inorganic nitrogen for the Las Vegas Wash as described in NAC 445A.201 were also monitored, and are reflected in the proposed requirements for these constituents. Requirements for flow rate, ammonia, total phosphorus, and total dissolved solids are based on the need to preserve the present water quality in the Las Vegas Wash and Lake Mead. Ammonia and total phosphorus were not detected in the August 2000 sampling event. However, previous monitoring has shown these constituents to be present in the wastewater in de minimus amounts. Therefore, the requirement for monitoring and reporting is proposed to verify that significant quantities of these nutrients are not discharged. The permit limitations and monitoring requirements for this Outfall are not changed from that required previously.

OUTFALL 002
Review of analytical results for permeate produced in bench scale testing indicate levels of most inorganic and organic pollutants of concern below appropriate detection limits. Those metals with inconclusive/inadequate detection limits were Arsenic (<0.05 mg/L), and Selenium (<0.07 mg/L). Mercury (<0.001 mg/L) was below the USEPA Primary Drinking Water Standard Maximum Contaminant Level (MCL) of 0.002 mg/L, but it is not known if the concentration exceeds the Aquatic Life Standard listed in Nevada Administrative Code (NAC) 445A.144 (0.012 µg/L). Likewise, it is not known if the concentration reported for Silver (<0.01 mg/L) is below the Aquatic Life Standard listed in NAC 445A.144. In addition, Vanadium was detected, at a concentration of 0.08 mg/l.

The technology based effluent limitations for the Primary and Secondary Titanium Subcategory apply to this discharge stream. Therefore, Outfall 002 will be monitored and limited for Chromium (Total), Lead, Nickel, Titanium, Oil and Grease, Total Suspended Solids, and pH, based on the reported annual production levels of 230,000 lb/day Titanium Tetrachloride ($TiCl_4$), 48,500 lbs/day Titanium metal produced, and 42,850 lbs/day Titanium cast. Additionally, the process stream will be limited and/or monitored for the following: Arsenic, Selenium, Silver, Mercury, and Vanadium. While it is unlikely that Arsenic, Selenium, Silver and Mercury

are present, these parameters will be monitored with appropriate detection limits. Based on the NPDES application document, it is believed that the process stream does not contain any organic compounds of concern.

Proposed Effluent Limitations and Special Conditions:

As stated above, the non-contact cooling water will dilute the process stream as to make monitoring of the process stream impractical, each outfall will be monitored and limited separately according to the Tables below.

Table I.1
Outfall 001 Monitoring Requirements and Limitations
Non-Contact Effluent

PARAMETERS	EFFLUENT DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	30-Day Average	Daily Maximum	Measurement Frequency	Sample Type
Outfall 001 Flow (MGD)	6.2		Continuous	Recorder
pH[1] (Standard Units)	6.5 to 9.0		Continuous	pH Meter
Temperature (ºF)	Monitor & Report		Monthly	Discreet
Oil and Grease[2] (mg/L)	10	15	Monthly	24-hr Composite
Total Inorganic Nitrogen (mg/L)	10	--	Monthly	24-hr Composite
Ammonia as N (mg/L)	Monitor & Report		Monthly	24-hr Composite
Total Phosphorus (mg/L)	Monitor & Report		Monthly	24-hr Composite
Total Dissolved Solids (mg/L)	2300	2600	Monthly	24-hr Composite
Copper[3](mg/L)	0.85exp(0.8545 ln H - 1.465)		Quarterly	24-hr Composite
Hardness (mg/l as $CaCO_3$)	Monitor and Report-		Quarterly	24-hr Composite
Titanium (mg/L)	Monitor & Report		Quarterly	24-hr Composite
Chloride (mg/L)	Monitor & Report		Quarterly	24-hr Composite
Magnesium (mg/L)	Monitor & Report		Quarterly	24-hr Composite
Perchlorate [4] (mg/L)	Monitor & Report		Quarterly	24-hr Composite

1. pH excursions from the specified range are permitted, subject to the following conditions:
   a. The total time during which the pH values are outside the required range shall not exceed 3 hours in any calendar month; and
   b. No individual excursion shall exceed 15 minutes.

2. Oil and grease shall be monitored by 24-hour composite sample. If a daily maximum reading exceeds 15 mg/l, an additional set of samples shall be run to determine the concentrations of benzene, toluene, xylene, ethyl-benzene and total petroleum hydrocarbons.

3. H = Hardness, mg/l as $CaCO_3$

4. This analyte shall be monitored for a minimum period of four consecutive quarters. Monitoring may then be discontinued unless, after reviewing the results, NDEP determines that additional monitoring is required. Removal of this analyte from the monitoring protocol shall constitute a minor modification to the permit.

Table I.2
Outfall 002 Monitoring Requirements and Limitations
Neutralization Plant Treated Stream

PARAMETERS	EFFLUENT DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
	30-Day Average	Daily Maximum	Measurement Frequency	Sample Type
Flow (MGD)	0.208		Continuous	Recorder
pH[1] (Standard Units)	6.5 to 9.0		Continuous	pH Meter
Temperature (°F)	Monitor & Report		Monthly	Discreet
Oil and Grease (lb/day)	26.87	44.78	Monthly	24 hr Composite
Total Suspended Solids (lb/day)	43.66	91.78	Monthly	24 hr Composite
Total Chromium (lb/day)	0.403	0.985	Monthly	24 hr Composite
Lead (lb/day)	0.448	0.940	Monthly	24 hr Composite
Nickel (lb/day)	2.843	4.299	Monthly	24 hr Composite
Titanium (lb/day)	0.918	2.104	Monthly	24 hr Composite
Total Inorganic Nitrogen (mg/L)	17		Quarterly	24-hr Composite
Total Ammonia [2] (lb/day)	1.0		Quarterly	24-hr Composite
Total Phosphorus [2] (lb/day)	1.0		Monthly	24-hr Composite
Total Dissolved Solids (mg/L)	---	3000	Monthly	24-hr Composite
Hardness (mg/l as $CaCO_3$)	Monitor & Report		Quarterly	24-hr Composite
Arsenic (µg/L)	Monitor & Report		Quarterly	24-hr Composite
Selenium (µg/L)	Monitor & Report		Quarterly	24-hr Composite
Silver (µg/L)	Monitor & Report		Quarterly	24-hr Composite
Mercury (µg/L)	Monitor & Report		Quarterly	24-hr Composite
Vanadium (µg/L)	Monitor & Report		Quarterly	24-hr Composite

1. pH excursions from the specified range are permitted, subject to the following conditions:
    a. The total time during which the pH values are outside the required range shall not exceed 3 hours in any calendar month; and
    b. No individual excursion shall exceed 15 minutes.

2. The Administrator has proposed that in order to permit small volume discharges to the Las Vegas Wash/Las Vegas Bay System it is necessary to modify the manner in which the Total Maximum Daily Load (TMDL) is allocated. This action does not increase or decrease the TMDL for the Las Vegas Bay. Discharges with less than 1lb/day total phosphorus or total ammonia will be exempt from obtaining an individual waste load allocation. Discharges will be required to monitor and report their flow and concentration.

Proposed Determination:
The Division has made the tentative determination to issue the proposed modified permit for the remainder of the five-year period. The modified permit shall expire at midnight on June 12, 2007.

Schedule of Compliance
The Permittee shall implement and comply with the provisions of the schedule of compliance after approval by the Administrator, including in said implementation and compliance, any additions or modifications that the Administrator may make in approving the schedule of compliance. **All compliance deliverables shall be submitted to the attention of the Compliance Coordinator.**

a. The Permittee shall achieve compliance with the effluent limitations upon issuance of the permit.

b. Within forty-five (45) days of the permit issuance date, the Permittee shall submit for review and approval a copy of the Operations & Maintenance (O&M) Manual for the Wastewater Neutralization Plant, prepared in accordance with the Division's WTS-2 guidance: *Minimum Information Required for an Operations and Maintenance Manual*. **This document shall be wet stamped and signed by a Nevada Professional Engineer (P.E.).** The document shall be sent for Division Approval to the following addresses:

Mr. Nadir Sous
Nevada Division of Environmental Protection
Las Vegas Office
1771 East Flamingo Road
Suite 121-A
Las Vegas, NV 89119

Division of Environmental Protection
Bureau of Water Pollution Control
ATTN: Diana Silsby - Compliance Coordinator
333 West Nye Lane
Carson City, Nevada 89706-0851

c. Within ninety (90) days of the permit issuance date, the Permittee shall submit as-built drawings of the Wastewater Neutralization and Reverse Osmosis facility Mr. Nadir Sous at the above address. **This document shall be wet stamped and signed by a Nevada Professional Engineer (P.E.).**

Procedures for Public Comment:
Public comment may be made only on the modifications to the permit: Outfall 002. Notice of the Division's intent to reissue Permit NV0000060, subject to the conditions contained within the permit, is being sent to the **Las Vegas Review-Journal** for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing, postmarked no later than 5:00 PM on **April 28, 2005**. The comment period can be extended at the discretion of the Administrator.

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.238. The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Prepared by: Janine O. Hartley
March 2005